

MODZALEVSKAYA, Ye.A.; FREYDIN, A.I.; GOSTINTSEV, K.K.

Recent data on Lower Carboniferous deposits of the middle  
Amur Valley. Dokl. AN SSSR 148 no.3:672-675 Ja '63.

(MIRA 16:2)

1. Vsesoyuznyy neftyanoy nauchno-issledovatel'skiy geologo-  
razvedochnyy institut. Predstavleno akademikom D.V. Nalivkinym.  
(Skovorodino District—Geology, Stratigraphic)

FREYDLIN, A.S.

Building construction with the use of plastics. Plast.massy  
no.9:78-79 '60. (MIRA 13:11)  
(Construction industry) (Plastics)

KHRULEV, V.M.; GUBENKO, A.B., doktor tekhn. nauk, retsenzent;  
FREYDIN, A.S., kand. tekhn. nauk, retsenzent; SKRIPOV,  
B.S., kand. tekhn.nauk, retsenzent; SIVOKHIN, F.P.,  
dots., retsenzent; ZAYCHIKOVA, E.A., red.; KASIMOV, D.Ya.,  
tekhn. red.

[Improving the durability of glued wooden structures and  
building elements] Povyshenie dolgovечnosti kleenykh de-  
reviannykh konstruktsii i stroitel'nykh detalei. Moskva,  
Gosstroizdat, 1963. 113 p. (MIRA 16:8)

(Plywood)

FREYDIN, A.S.

Effect of radioactive radiation on physical and mechanical properties  
of wood. Dar.prom. 7 no.9:13-15 S '58. (MIRA 11:11)

1. TSentral'nyy nauchno-issledovatel'skiy institut mekhanicheskoy  
obrabotki drevesiny.

(Wood--Testing) (Radioactivity)

KUDRY/SHEV, L.I., prof., doktor tekhn.nauk; FREYDIN, A.S., dotsent

Determination of the hydraulic resistance and heat transfer in  
turbulent air flow in noncircular tubes. Sbor. nauch. trud. Kuib.  
indus. inst. no.8:293-299 '59. (MIRA 14:7)  
(Heat--Transmission) (Hydrodynamics)

FREYDIN, A.S.; MALINSKIY, Yu.M.; KARPOV, V.L.

Effect of ionizing radiation on natural polymers. Carbohydrate-lignin complex and its components. Vysokom.soad. 1 no.5:784-790  
M<sub>3</sub> '59. (MIRA 12:10)

1. TSentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh  
konstruktsiy Akademii stroitel'stva i arkhitektury SSSR i Fiziko-  
khimicheskiy institut im. L.Ya.Karpova.  
(Gamma rays) (Lignin)

FREYDIN, A.S.; MALINEKIY, Yu.M.; KARPOV, V.L.

Effect of ionizing radiation on the chemical stability of wood.  
Gidroliz i lesokhim.prom. 12 no.4:4-7 '59. (MIRA 12:8)

1. Tsentral'nyy nauchno-issledovatel'skiy institut mekhanicheskoy obrabotki dereva (for Freydin). 2. Fiziko-khimicheskii institut im. L.Ya. Karpova (for Malinskiy, Karpov).  
(Wood--Chemistry) (Radiation)

FREYDIN, A. S., Cand Tech Sci -- (diss) "Action of ionizing radiation on the properties of wood and its components." Moscow, 1960. 20 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Forestry Engineering Inst); 125 copies; price not given; (KL, 21-60, 126)



FREYDIN, A.S.

Modification of wood properties by ionizing radiation. Der.  
prom. 9 no. 1:15-16 Ja '60. (MIRA 13:4)  
(Radiation) (Wood)

S/629/60/000/003/008/011  
D202/D305

AUTHORS: Freydin, A. S., and Malinskiy, Yu. M.

TITLE: The effects of ionizing radiation on polysaccharides

SOURCE: Vsesoyuznoye khimicheskoye obshchestvo imeni D. I. Mendeleeva, Uspekhi khimii i tekhnologii polimerov, sb.3, Moscow, Goskhimizdat, 1960, 130-159

TEXT: A summary of experimental results of the irradiation of mono- and polysaccharides with high-speed electrons, X- and  $\gamma$ -rays and neutrons, published both by Western and Soviet investigators. The authors describe many experiments in detail, illustrating them by tables, figures and reaction mechanisms taken from the original, mostly Western publications. The summary is divided into three parts: 1) The action of radiation on simple saccharides - glucose, fructose, lactose, sucrose and raffinose, 2) the action of radiation on polysaccharides (except cellulose) - agar, insulin, gum arabic, starch, amylose, pectin, amylopectin, dextran, alginic acid and some mucosaccharides, 3) the effects of irradiating

Card 1/2

FREYDIN, A.S.; SHOLOKHOVA, A.B.; KROL', M.S.; BEL'FER, S.I.

Use of synthetic adhesives based on phenol-formaldehyde resins in  
bonding asbestos cement. Plast.massy no.6:42-46 '60.

(Asbestos cement)

(Adhesives)

(MIRA 13:11)

(Phenol condensation products)

15 1124

S/191/60/000/009/004/010  
B013/B055

AUTHORS: Sholokhova, A. B., Freydin, A. S., Gurman, I. M., Rass, F.V.  
TITLE: Use of Synthetic Resins for Bonding Asbestos Cement.  
Adhesives Based on Epoxy Resins  
PERIODICAL: Plasticheskiye massy, 1960, No. 9, pp. 17 - 21

TEXT: The present publication treats the development of epoxy-resin base adhesives for asbestos cement. The working methods applied have been described previously. The experiments were mainly carried out using ЭД-6 (ED-6) and ЭД-5 (ED-5) epoxy resins. The epoxy resins of types ЭДФ-1 (EDF-1) and ЭДФ-3 (EDF-3) were used in some tests. The tests showed that in spite of the strength and stability of the adhesive joints (Table 1), adhesives based on ED-6 and ED-5 with polyethylene amine as hardener are not recommendable, since the high initial viscosity of these adhesives renders them uneconomic in use. In all subsequent tests therefore, the residue from hexamethylene diamine distillation was used as hardener. The following additives were tested with a view to improving certain characteristics: styrene, dibutyl phthalate, МГФ-9 (MGF-9) and

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Use of Synthetic Resins for Bonding Asbestos  
Cement. Adhesives Based on Epoxy Resins

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ТГМ-3 (TGM-3) polyester and Kukersol' varnish (Table 2). From the technical and economic standpoint cement proved the most suitable filler. Compounds with MCF-9 and TGM-3 polyester acrylate resins (corresponding to ЭПЦ-1 (EPTs-1) and ЭПЦ-2 (EPTs-2)) were found to be the best adhesives for industrial purposes. The most characteristic properties of an adhesive (under otherwise constant conditions) are increasing bond strength (Table 3) and bonding property (Table 4). Since these factors are dependent on the temperature of the medium, tests were carried out at 18 - 20°C and 30 - 35°C. It may be seen from Table 3 that a sufficient bond strength is attained at 30°C after pressing for 6 h and at 18°C after pressing for 8 h. Maximum bond strength, however, is reached only after 24 h. Table 4 shows that the adhesive retains its bonding property for 2 - 3 h after being applied to the surface. The required bond strength was attained in as little as 1.5 h by accelerating the bonding process by moderate heating (60-100°C) (Table 5). The strength of adhesive joints was tested by natural and accelerated aging (Figs. 2 and 3) which caused destruction of material but not of adhesive joints. Similar results were obtained in tests of weather resistance (Fig. 4a) and resistance to water (Fig. 4b). The positive results obtained with small samples were confirmed

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Use of Synthetic Resins for Bonding Asbestos  
Cement. Adhesives Based on Epoxy Resins

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at bonding of large panels. These tests were carried out under the supervision of L. M. Koval'chuk and V. V. Paturoyev. At present, bonding of asbestos-cement panels is being tested on an experimental building in Lyubertsy. M. N. Plungyanskaya is mentioned. There are 5 figures, 5 tables, and 1 Soviet reference.

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Card 3/3

FREYDIN, A.S.

Corrosion-resistant coating for valves in chemical apparatus (from  
"Adhesive Age," no.10, 1960). Plast.massy no.4:74 '61.

(Protective coatings)

(MIRA 14:4)

FREYDIN, A.S.

Two methods for manufacturing tri-layered (sandwich) panels from  
foam polystyrene with an aluminum lining (from "Adhesive Age,"  
no.11, 1960). Plast.massy no.4:74 '61. (MIRA 14:4)  
(Plastics)



FREYDIN, A.S.

Use of polyvinyl acetate glues for gluing wood. Der.prom. 9 no.11;  
12-13 N '60. (Glue) (Woodwork) (MIRA13:12)

FREYDIN, Anatoliy Semenovich; UGOLEV, B.N., red.; AZAROVA, V.G., red.  
izd-va; LOBANKOVA, R.Ye., tekhn. red.

[Effect of ionizing radiation on wood and its components] Dei-  
stvie ioniziruiushchei radiatsii na drevesinu i ee kom-  
ponenty. Moskva, Goslesbumizdat, 1961. 118 p.  
(Wood—Chemistry) (Radiation) (MIRA 14:9)

KHRULEV, Valentin Mikhaylovich; FREYDIN, Anatoliy Semenovich; BELOZEROVA, Anastasiya Sergeyevna; AKSENOV, Viktor Vasil'yevich; GUBENKO, A.B., doktor tekhn. nauk, red.; AZAROVA, V.G., red. izd-va; PARAKHINA, N.L., tekhn. red.

[Wood gluing in foreign countries] Skleivanie drevesiny za rubezhom.  
By V.M.Khrulev i dr. Moskva, Goslesbumizdat, 1961. 301 p.  
(Woodwork) (MIRA 14:11)

FREYDIN, A.S.

Production and consumption of synthetic adhesives abroad. Plast.  
massy no.1:69-72 '61.  
: (Adhesives) (MIRA 14:2)

GUBENKO, A.B.; FREYDIN, A.S.; SHOLOKHOVA, A.B.

Application of synthetic adhesives to the gluing of wood fiber  
tiles to various materials. Plast.massy no.4:30-33 '61.  
(MIRA 14:4)

(Adhesives)

(Building materials)

FREYDIN, A.S.

Epoxide adhesives in airfield construction (from "Adhesive Age,"  
no.10, 1960), Plast.massy no.5:71 '61. (MIRA 14:4)  
(Adhesives) (Epoxy resins)

1.2200 2208 2808 only  
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S/191/61/000/009/003/007  
B110/B218

AUTHORS:

Freydin, A. S., Sholokhova, A. B., Krol', M. S.

TITLE:

Applicability of accelerators in gluing asbestos cement and aluminum with phenol glues

PERIODICAL:

Plasticheskiye massy, no. 9, 1961, 20 - 24

TEXT: The reduction of hardening temperatures of phenol resins by means of accelerators is important for gluing asbestos cement since it is subject to cracking at high temperatures. The authors suggested alcoholates, glycerates, phenolates of Ca and Zn, as well as  $MnO_2$ ,  $PbO_2$ ,  $(NH_4)_2S_2O_8$ ,  $KMnO_4$ ,  $PbCrO_4$ ,  $ZnCrO_4$ ,  $Na_2CrO_4$ ,  $Na_2Cr_2O_7$  as accelerators. They studied the use of

various accelerators for gluing asbestos cement with aluminum alloys by means of phenol glues. They tested: (a) alkalis:  $KOH$ ,  $NaOH$ ,  $Ca(OH)_2$ ,  $MgO-MgCl_2$  mixture, borax; (b) resorcinol, resorcinol-formaldehyde resin

$\phi P-12(FR-12)$ ; (c) diphenol ketone resins on schistous raw material basis:  $\Pi\phi K-1A(DFK-1A)$ ;  $\Pi\phi K-7\Pi(DFK-7P)$ ; (d) weak acids: phenyl urethanyl sulfochloride (PUSC), oxymethyl phosphinic acid (OMPA), its Na monosalt,

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Applicability of accelerators...

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boric acid; (e) various fillers: potentially active fillers: vibration-crushed coke, sulfocarbon, Fe powder, gypsum. They used as glues: (1) phenol formaldehyde resin "Б" ("B") with 10 parts by weight of wood dust; (2) ЦНИИМОЛ-1 (TsNIIMOD-1) resin and bakelite varnish. Asbestos sheets 8-9mm thick containing 7-12% H<sub>2</sub>O were glued together for cleaving tests, and AMr-AT (AMg-AP) aluminum 2 mm thick for shear tests. The hardening rate was examined at 110-112°C. The hardening temperature of 150°C corresponded to a temperature of the joint in asbestos cement of 120-125°C, in aluminum of 150°C. The specimens were tested for durability of the gluing on test machines of the type Amsler or Shopper in dry state, as well as after 24 hr moistening with H<sub>2</sub>O and acetone. PUSC, OMPA, and mono-Na-OMPA destroy the asbestos cement surface during resin hardening. Fillers do not accelerate hardening. The fillers gypsum and MgO-MgCl<sub>2</sub> mixture, which react with the methylol groups of resin; bind the cement and reduce adhesion. Ca(OH)<sub>2</sub>, KMnO<sub>4</sub>, resorcinol-formaldehyde resin FR-12, and the diphenyl ketone resins DFK-1A and DFK-7P were found to be suited best. Among them, KMnO<sub>4</sub> and Card 2/6



Applicability of accelerators...

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FR-12 (with 13% paraformaldehyde) were most efficient. 10-20% of alkali considerably accelerates hardening, but reduces the water resistance strongly. An addition of  $\leq 10\%$   $\text{Ca(OH)}_2$  does not affect the water resistance,  $\text{Ca(OH)}_2$  3-5% increases the viscosity and reduces the service life of the glue. With 5%  $\text{Ca(OH)}_2$ , hardening takes 13 min. The cleaving strength of asbestos cement is 26  $\text{kg/cm}^2$  in dry state, 30  $\text{kg/cm}^2$  after 24 hr moistening. Optimum results were obtained by FR-12 with  $\text{KMnO}_4$ . Similar results were obtained with other resorcinol resins such as  $\text{DM-12}$  (DM-12) synthesized at the NIIPM, and  $\text{DFK-1A}$  (DFK-1A) produced by A. Ya. Aarna, K. R. Kiysler (Ref. 10: Goryuchiye slantsy, Byull. nauchno - tekhn. inform. (Tallin), No. 1, 37 (1961)) at the Tallinskiy politekhnicheskii institut (Tallin Polytechnic Institute); DFK-1A proved to be optimum. The glues are highly water-resistant. Open storage for  $\leq 48$  hr at 18-20°C after application improves the quality of the FR-12 +  $\text{KMnO}_4$  gluing. Accelerators are inefficient with TsNIIMOD resin and bakelite varnish. For Al gluings, the "B" resin is modified to the quick-hardening  $\text{FE-10}$  (FE-10) glue by means of epoxy resin  $\text{ED-5}$  (ED-5) or  $\text{ED-6}$  (ED-6). Good acceleration (from 8 to 1.5 min) was attained with 10% addition of diphenyl ketone resin  $\text{DFK-7P}$  (DFK-7P) to FE-10. 20% of 40% formalin and 1% Card 3/6

Applicability of accelerators...

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concentrated soda lye should be added at the same time. The stable  $\phi\phi$ -10 (FRE-10) glue contains: phenol formaldehyde resin B, diphenyl ketone resin DFK-7P, epoxy resin ED-5 or ED-6, 40% formalin, and wood dust, and it is fully water-resistant like  $\phi\phi$ (FR) (glue B and resin DFK-1A). Destruction always occurs in the asbestos cement, not in the glued joint. Three months' heating at 80-100°C does not reduce the strength which speaks in favor of the stability of the resulting polymer systems. Protraction of the optimum hardening time (1.5-2.5 min) to 5 min reduces strength. The authors assume that the hardening of modified phenol glues  $\phi\phi$ -2(BF-2), BK-32-200(VK-32-200), etc. is also accelerated by resins of the DFK type. Experiments concerning the effect of acceleration on aging yielded constant strength after 40 and 80 cycles. There are 3 figures, 3 tables, and 10 references: 4 Soviet and 6 non-Soviet. The three most important references to English-language publications read as follows: Ref. 3: US Patent 1693461; Ref. 5: Adhesive and resins, 5, 70 (1956); Ref. 8: US Patent 2855382.

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<sup>23989</sup>  
S/191/61/000/011/005/008  
B110/B147

AUTHOR: Freydin, A. S.

TITLE: Effect of the method of aluminum-surface preparation on the strength of its gluing with various materials

PERIODICAL: Plasticheskiye massy, no, 11. 1961, 31-33

TEXT: The results of gluing tests of Al to Al, to honeycomb plastics and honeycomb wood-fiber plastics conducted by the TsNIISK under cooperation of A. M. Anisimov are presented. A comparison is made of the bonding strength of AMG-AP (AMG-AP) Al alloy without preparation, after grinding with sand-paper no. 100, anodizing in  $H_2SO_4$  (200 g/liter), anode current density 1.0-1.5 a/cm<sup>2</sup>, etching in  $H_2SO_4$  with addition of dichromate. Al was degreased in an  $Na_3PO_4$ -NaOH waterglass bath or in a 2 % aqueous solution of surface-active ОП-10 (OP-10). Honeycomb plastics from fabric and phenol resin with 9 mm long cell sides, and specially hard wood-fiber boards from the Seletskiy Combine were glued by means of a lever press. The strength

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X

Effect of the method of...

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B110/E147

of specimens was investigated directly after gluing and cyclic tests simulating atmospheric factors and accelerated aging. The specimens were moistened during 18, 7, 15, and 8 hr, frozen at  $-20^{\circ}\text{C}$ , thawed at  $20^{\circ}\text{C}$ , and heated to  $80^{\circ}\text{C}$ . The following glues were used: Epoxy glue ЭПЦ-1 (EPTs-1), phenol glue Б (B), and phenol epoxy glue ФЭ-10 (FE-10). Owing to an increase of the gluing surface, the mechanical treatment increases the bonding strength by 25 %. Best results are obtained for electrochemical oxidation (2.7-fold strength) and etching, especially with epoxy glue ЭПЦ (EPTs). Since similar, but less distinct, conditions exist for B glue, the effect of surface preparation also depends on the type of glue. The porous oxide film formed on the Al surface during oxidation increases the gluing surface, and especially protects the unstable Al alloys Д16Т (D16T), Б-95 (V-95), etc., against corrosion. Anodic oxidation before gluing is, therefore, in the Soviet Union compulsory in some branches of industry. The bonding strength oxide film-basic surface is  $> 300 \text{ kg/cm}^2$ . Drawbacks are: (1) Brittleness of the oxide film. (2) Complexity of the process. For corrosion-proof Al alloys (e.g., AMG-AP), the surface can be prepared for the glues EPTs-1 and B by means of etching (aircraft industry) with chromosulfuric acid (oxide film obtained  $\leq 1-2 \mu$ ). For EPTs-1 the bonding

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Effect of the method of...

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B110/B147

strength on an etched surface equals that on an anodically oxidized one. If the Al samples glued to honeycomb plastics are anodically oxidized, the destruction during breaking occurs in the plastic. Storage of etched and oxidized specimens for 20 days previous to gluing does not affect the strength. For the glues B (I) and  $\Phi$ 9-10 (FE-10) (II), during accelerated aging, an initial increase in strength of treated, in contrast to untreated, Al of I = 55 % and II = 148 % was found; for the fortieth cycle, this increase was 95 % for I and 118 % for II. Al degreased for 3 min at 60-70°C in a bath of 8-12 g of NaOH, 40-60 g of  $\text{Na}_3\text{PO}_4$ , and 25-35 g of waterglass per liter (total alkalinity = 1.6-2.5 % related to NaOH), which was first rinsed with hot, then with cold water, corresponded in shear strength to the specimens degreased with acetone. However, since alkali affects Al, specimens were degreased with 0.2 % OP-10 solution and glued with EPTs-1. Their strength corresponded to that of specimens degreased with acetone. There are 5 figures, 1 table, and 3 Soviet references.

X

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B110/B147

Effect of the method of...

Table. Effect of the type of Al surface treatment on the bonding strength.

Legend: (1) Material glued to Al; (2) honeycomb plastic; (3) wood-fiber boards; (4) strength limit for cleaving,  $\text{kg/cm}^2$ ; (5) untreated Al; (6) mechanically treated Al; (7) anodized Al; (8) etched Al; (9) remark: numerator = mean value of the strength limit, denominator = minimum and maximum value. X

Card 4/5

~~FREYDIN, A.S.,~~ kand. tekhn. nauk

Use of rubber adhesives in woodwork in foreign countries. Der.  
prom. 11 no.4:15-16 Ap '62. (MIRA 15:4)  
(Gluing)

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S/032/62/028/004/019/026  
B124/B101

AUTHORS: Panferov, K. V., and Freydin, A. S.

TITLE: Determination of the strength of adhesive bonds with small laboratory samples

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 4, 1962, 494 - 495

TEXT: Metal-to-metal adhesive bonds were tested by pulling apart two 2.20.60 mm aluminum foils with a glued length of 15 mm. This sample size has been accepted by the ГОСТ (GOST). A special device with clamps was used to perform compression tests on glued joints of asbestos cement and glass-reinforced plastic; the size of the samples used is 30.60 mm with a glued length of 30 mm for thicknesses of the glass-reinforced plastic sheet of more than 3 mm and 30.30 mm with a glued length of 10 mm for sheets less than 3 mm thick. Joints of the mentioned reinforcing materials with honeycomb plastics, low-density foamed plastics of the types ПС-4 (PS-4) and ПСБ (PSB), and expanded silicate were tested on three-layer samples, 50.75 mm, with a glued area of 50.50 mm. Glued joints with more compact foamed plastics such as ПС-1 (PS-1), ПХВ-1 (PKhV-1), and others, Card 1/2

✓B



Determination of the ...

S/032/62/028/004/019/026  
B124/B101

can be tested using two-layer samples, 75.50 mm, with a glued surface of 50.30 mm. Tests were performed with "Schopper", "Amsler", and other types of testing machines. The tests proved the high quality of the tested materials in wet and in dry state, and also after accelerated aging. In consequence of the power eccentricity, only the results of specimens with the same geometrical sizes and from the same material are comparable. There are 3 figures.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'-nykh konstruktsiy (Central Scientific Research Institute of Structural Parts)

Card 2/2

✓B

FREYDIN, A.S.; OVES, V.I.

Rubber adhesives for bonding aluminum to other construction materials. Kauch.i rez. 21 no.9:43-46 S '62. (MIRA 15:11)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktsiy Akademii stroitel'stva i arkhitektury SSSR.

(Rubber to metal bonding)

S/191/62/000/010/010/010  
B101/B186

AUTHORS: Freydin, A. J., Panferov, K. V.

TITLE: Methods of testing glued joints on plastics and other  
constructional material in shear

PERIODICAL: Plasticheskiye massy, no. 10, 1962, 57 - 60

TEXT: Following ASTM standards, the optimum sizes of specimens were worked out for testing three-layered panels faced with aluminum, asbestos cement, or glass-reinforced plastics, on a core of ПС-1 (PS-1), ПС-4 (PS-4), ПБХ-1 (PVBH-1), and ПЕ(ПБ) foam plastics, kraft paper, or paper honeycomb plastic. As the coupled forces when testing materials thicker than sheet aluminum are otherwise too eccentric, the shearing test is carried out by means of compression. Panels faced with asbestos cement are tested in a similar way to glued wood, the test area being 3.3 cm, but 3.1 cm is recommended in the case of glass reinforced plastics thinner than 3 mm. To avoid crushing the honeycomb core in panels of honeycomb plastics, the cavities in it were filled with gypsum, but this was found to take too much time. Instead of five-layered combinations, three-layers with areas of 5.5 cm

Card 1/2

Methods of testing ...

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B101/B186

are tested. The friction between the apparatus and the wall of the sample was reduced by rollers. Two-layered specimens may also be used for testing solid Ps-1 and PVKh-1 foam plastics with a molecular weight of  $\sim 100 \text{ kg/cm}^3$ . Single joints of glued wood-fiber plates were tested. All tests were conducted in Schopper or Amsler machines with a 250 - 500 kg scale and a feed of 20 + 50 mm/min. To obtain comparable results, specimens with equal geometry have to be used. There are 4 figures. ✓

Card 2/2

FREYDIN, A.S., kand.tekhn.nauk; OVES, V.I., inzh.

Gluing of wood with domestic rubber adhesives. Der.prom. 11  
no.12:7-8 D '62. (MIRA 16:1)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh  
konstruktsiy Akademii stroitel'stva i arkhitektury SSSR.  
(Woodwork) (Adhesives)

S/191/63/000/001/015/017  
B117/B180

AUTHORS: Freydin, A. S., Orlova, L. B.

TITLE: Method of determining the degree of setting of polymers

PERIODICAL: Plasticheskiye massy, no. 1, 1963, 72 - 73

TEXT: Different methods were tested on high-duty epoxy resin adhesive ЭПД-1 (EPTs-1) used for structural components, and on joints based on epoxy resins ЭАФ-1 (EDF-1), ЭАФ-3 (EDF-3), ЭАФ-11 (EDF-11), and ЭАФ-13 (EDF-13). The kinetics of weight increase and decrease was studied on set adhesive castings, after soaking up to 6 days in acetone and drying at 20°C. The kinetic curves were similar for all the resins and revealed the following: after 3 days at 20°C specimens showed a weight increase due to swelling on the first day, followed by a decrease due to rinsing out of unreacted and acetone-insoluble components. After drying the weight was lower than originally. The curves were similar for specimens set longer (6 days, 20°C), but the initial weight increase was smaller. This was attributed to the complete setting. After 3 days setting at 20°C and 3 hrs heating at 120°C there was first swelling without removal of unreacted substances. The process was stabilized after Card 1/2

Method of determining the degree ...

S/191/65/000/001/015/017  
B117/B180

3 days. After drying the original weight was resumed but the volume remained enlarged by swelling. After the additional heat treatment setting was complete but swelling in acetone continued. The strength of a joint thus depends on the swelling capacity of the set polymers in solvents, not on the degree of setting. It is not the swelling but the degree of extraction by the solvent which should therefore be used to indicate the degree of setting of a polymer. There is 1 figure.

Card 2/2

FREYDIN, A.S.; CRLOVA, L.B.

Method for the determination of the degree of hardening  
of polymers. Plast.massy no.1:72-73 '63. (MIRA 16:2)  
(Polymers)



GUBENKO, A.B., doktor tekhn.nauk; FREYDIN, A.S., kand.tekhn.nauk

Synthetic glue for gluing structural elements. Trudy TSNIISK no.24:  
76-113 '63. (MIRA 17:1)

FREYDIN, A.S., kand.tekhn.nauk; SHOLOKHOVA, A.B., inzh.; RASS, F.V., inzh.

Synthetic glue for gluing asbestos cement and concrete together and  
with plastics and other materials. Trudy TSNIISK no.24:114-145 '63.  
(MIRA 17:1)

ACCESSION NR: AR4042225

S/0124/64/000/006/B042/B043

SOURCE: Ref. zh. Mekhanika, Abs. 6B258

AUTHOR: Gorelov, G. M.; Freydin, A. S.

TITLE: Certain results of experimental investigation of a diffuser with back-water of flow at the outlet

CITED SOURCE: Tr. Kuyby\*shevsk. aviats. in-t, vy\*p. 15, ch. 2, 1963, 145-150

TOPIC TAGS: diffuser, diffuser flow

TRANSLATION: In a symmetric channel with sudden expansion (in a Borda mouth-piece) flow turned out to be asymmetric. Asymmetric vortexes forming at channel walls have a varying magnitude, cause distortion of the axis flow and are not carried downstream. Hydrodynamic losses on the section from the inlet to full spreading out of the flow at a certain distance from the section, where sudden expansion occurs, are determined by the known Borda-Carnot formula. In diffusers with large angles of expansion the axis of flow is also distorted, but the vortexes

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ACCESSION NR: AR4042225

appearing at one or another wall are carried downstream. In connection with this, hydrodynamic losses in diffusers with large angles of expansion are greater than in channels with sudden expansion, since on separation and on vortex formation there is expended additional energy. With placement in the channel on the section after the sudden expansion of a resistance in the form of a grid or bundle of pipes, flow is stabilized, the axis of flow and field of velocities are equalized. An analogous phenomenon is observed in diffusers. Experiments showed that hydrodynamic losses in channels with a sudden expansion and a resistance, determined on the section from the inlet to the resistance, do not depend on the distance to the resistance. These losses turned out to be equal to losses in a Borda mouth-piece. In a diffuser, after which there is established a resistance, losses at any angles of expansion of the channel do not exceed losses appearing in channels with sudden expansion.

SUB CODE: PR, ME

ENCL: 00

Card 2/2

ACCESSION NR: AT4008767

S/2804/63/000/024/0146/0194

AUTHOR: Freydin, A. S. (Candidate of technical sciences); Orlova, L. B. (Engineer); Oves, V. I. (Engineer); Karmilov, S. S. (Engineer)

TITLE: Synthetic adhesives for bonding aluminum alloys to aluminum alloys, plastics, and other materials

SOURCE: ASIA SSSR. Institut stroitel'nykh konstruktsiy. Trudy\*, no. 24, 1963. Tekhnologiya izgotovleniya kleyenykh paneley iz plastmass, alyuminiya, asbestotsementa i betona, 146-194

TOPIC TAGS: adhesive, synthetic adhesive, phenolic adhesive, epoxy adhesive, rubber adhesive, bonding, aluminum alloy, aluminum alloy bonding, foamed plastic bonding, honeycomb plastic bonding, surface treatment, adhesive bonding strength, adhesive shearing test, adhesive stripping test, artificial aging, natural aging, aging thermal stability, long time strength, waterproofness, plastic adhesive, glue, rubber adhesive, water repellency

ABSTRACT: Adhesives have been selected and evaluated for use in three-layer wall and roof panels. Because of their favorable technological, physical and mechanical characteristics, phenolic, epoxy and rubber groups were given special

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ACCESSION NR: AT4008767

attention. A great variety of native and foreign ingredients were used in experimental compositions. Shearing and stripping tests were basic in evaluating the compositions. Bonding aluminum to aluminum, to foamed plastics, to honeycomb plastics, and to fiberboard sheets was discussed. Most of the examined adhesives showed both advantages and deficiencies and no definite recommendations have been made. Larger-scale mechanical tests have also been conducted on three-layer construction specimens to bring testing closer to real conditions. Artificial and natural aging, thermal stability, waterproofness and water repellency, long-time strength and creep have been examined. Testing procedures, particularly for ultimate stress, have been established. Soviet-made ingredients involved in the tests include ED-6, ED-5, EDF-3, EDF-1, EDF-13, EDF-11, EPF epoxy resins, PS-1, PS-4, PKhV, PSB foamed plastics and FE-5, FE-10, FRE-10, EPTs-1, EPTs-2, EORTs, EOSTs-1, EOSTs-2 adhesives. A new adhesive composition is suggested, designated KS-1, which is equal or superior in aging thermal stability to others. The composition of this and some other adhesives are given. Most results of the work are of preliminary character. "M. M. Belousova, A. A. Karpova, L. A. Khvenchuk, A. Ye. Gorenkova, M. I. Romadina and Yu. G. Korabel'nikov also took part in the work." Orig. art. has: 25 figures and graphs, and 9 tables.

Card 2/3

ACCESSION NR: AT4008767

ASSOCIATION: Institut stroitel'nykh Konstruktsiy, ASIA SSSR (Institute of Building Materials, ASIA SSSR)

SUBMITTED: 00

DATE ACQ: 17Jan64

ENCL: 00

SUB CODE: MT

NO REF SOV: 011

OTHER: 001

Card 3/3

FREYDIN, A.S., kand.tekhn.nauk; SHOLOKHOVA, A.B., inzh.

Gluings and repair of concrete using synthetic glues. Bet.1  
zhel.-bet. 9 no.5:226-229 My '63. (MIRA 16:6)  
(Adhesives) (Concrete construction)



FREYDIN, A.S.; OVES, V.I.

Rubber glues for gluing structural materials. Stroi. mat. 9 no.2:  
39-3 of cover F '63. (MIRA 16:2)  
(Adhesives) (Building materials)

LEVIN, N.I., kand.tekhn.nauk; FREYDIN, A.S., kand.tekhn.nauk; SHOLOKHOVA, A.B.,  
inzh.; NOL'DE-STARCHENKO, A.S., inzh.

Gluing of cellular concrete wall panels. Stroi.mat. 9 no.9:16-17  
S '63. (MIRA 16:10)

ACCESSION NR: AT4008768

S/2804/63/000/024/0195/0217

AUTHOR: Freydin, A. S. (Candidate of technical sciences); Chapskiy, K. A. (Engineer)

TITLE: Synthetic adhesives for bonding glass reinforced plastics to glass reinforced plastics and to other materials

SOURCE: ASIA SSSR. Institut stroitel'nykh konstruktsiy. Trudy\*, no. 24, 1963. Tekhnologiya izgotovleniya kleyenykh paneley iz plastmass, alyuminiya, asbestotsementa i betona. 195-217

TOPIC TAGS: adhesive, synthetic adhesive, phenolic adhesive, B, KB-3, epoxy adhesive, EPTs, bonding, glass reinforced plastic, PN-1, KAST, SVAM, glakrezit, polyester binder, phenol formaldehyde fluids, glass reinforced plastic bonding, foamed plastic bonding, aluminum alloy bonding, surface treatment, adhesive strength, bonding strength, glue, plastic glue, phenolic plastic adhesive

ABSTRACT: Extensive research on bonding native glass-reinforced plastics has been conducted in the SSSR for the aviation industry but little attention has been paid to the bonding of transparent glass-reinforced plastics for the construction industry. The selection and evaluation of suitable plastics have been undertaken

Card 1/3

ACCESSION NR: AT4008768

in which bonding glass-reinforced plastics to similar plastics, to aluminum alloys, to fiberboards, and to foamed plastics was tested. The adhesive and bonding strength of the plastics was tested mechanically on construction specimens. The testing procedure is not discussed at length in the article. It was found that the PN-1-polyester-resin-based adhesive and the KB-3 phenolic adhesive qualify for bonding polyester glass-reinforced plastics. For bonding to each other the KAST-B, SVAM and glakrezit glass-reinforced plastics phenolic and the KB-3 adhesives may be used. In the case of their mechanical treatment, the former must be treated with the KB-3 adhesive before bonding. The latter may be used for bonding the former to the PS and PKhV foamed plastics. The EPTs epoxy adhesive may be used for bonding all above mentioned materials and for bonding glass-reinforced plastics to aluminum alloys. Bonding them with the KB-3 adhesive to fiberboard sheets preserves at least 40 to 50% of their initial strength when tested for artificial and natural aging. The values of ultimate stresses obtained for the construction specimens are the same in general as those obtained for small experimental samples. "M. M. Belousova, R. V. Yugova, M. A. Abdurakhmanov and P. A. Gerchikov took part in the experimental work." Orig. art. has: 14 figures and graphs, and 3 tables.

Card 2/3

ACCESSION NR: AT4008768

ASSOCIATION: Institut stroitel'nykh konstruktsiy, ASIA SSSR (Institute  
of Building Materials, ASIA SSSR)

SUBMITTED: 00

DATE ACQ: 17Jan64

ENCL: 00

SUB CODE: MT

NO REF SOV: 005

OTHER: 000

Card 3/3

L 23356-65 EWT(1)/EWT(m)/EPF(c)/EPF(n)-2/EPR/T/EPA(bb)-2/EMA(1) Pr-L/Ps-L/Pa-L  
ACCESSION NR: AR5000893 JD/WW S/0264/64/000/0: 0/A038/A038

SOURCE: Ref. zh. Vozdushnyy transport. Svodnyy tom, Abs. 10A242

AUTHOR: Freydin, A. S.

TITLE: Application of the generalized hydrodynamic theory of heat exchange to fluid flows in channels with locally variable flow cross sections

CITED SOURCE: Tr. Kuybyshevsk. aviats. in-t, vyp. 15, ch. 2, 1963, 91-105

TOPIC TAGS: turbulent liquid flow, stabilized flow, channelled flow, heat exchange, heat transfer coefficient, flow cross section

TRANSLATION: The hydrodynamic theory of heat exchange was employed in an analysis of the process of heat transfer for a stabilized turbulent flow of incompressible liquid in a channel formed by two parallel plates. The analysis was carried out in an attempt to reduce the number of factors normally determined in experimental studies of the discussed process. As a result, relationships were evolved for calculating the local coefficients of heat transfer from experimentally defined values of the friction factor, the  $Pr_T$  factor and the exponent in an exponential law of velocity distribution. V. Petrov.

Card 1/2

L 23356-65  
ACCESSION NR: AR5000893

SUB CODE:ME, TD

ENCL: 00

Card 3/2

I 1957H-45 EPT(1)/EWP(m)/EPT(c)/EPT(n)-2/EWP(m)/EWA(1)/EPR/ECG(k)/EWA(1) 21/

PT-4/PS-4/PU-4 NW

ACCESSION NR: AR5002962

S/0264/64/000/011/A019/A039

SOURCE: Ref. zh. Vozdushnyy transport. Svodnyy tom, Abs. 11A257

AUTHOR: Orlov, V. N.; Freydn, A. S.

TITLE: An experimental study of heat exchange intensification in a biangular channel with localized expansions of the flow cross section

CITED SOURCE: Tr. Kuybyshevsk. aviats. in-t, vyp. 15, ch. 2, 1963, 106-115

TOPIC TAGS: biangular channel, localized expansion contour, hydraulic drag, heat exchange intensification, heat exchanger

TRANSLATION: The authors considered the intensification of heat exchange in channels. The methods of repeatedly recurring localized variations in shape and dimensions of the flow cross section was applied to a biangular channel of a drop-forged plate heat exchanger with an assigned center section, weight and hydraulic load level. The study employed the approach of investigating the localized heat emission of streamlined cylindrical bodies in a flow of air. In this procedure,

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L 38574-65

ACCESSION NR: AR5002962

the model is heated electrically to maintain constant density of the heat flux along its surface. Tests carried out on an enlarged model of a biangular channel with interchangeable sections made it possible to select more suitable configurations of localized channel expansions and, in turn, this facilitated a significant improvement in the ratio of emitted heat to hydraulic drag.

SUB CODE: PR, TD

ENCL: 00

Card 2/2

L 23359-65 EWT(1)/EWT(m)/EPF(c)/EPF(n)-2/EPR/T/EPA(bb)-2/EWA(1) Pr-4/Ps-4/Pu-4  
ACCESSION NR: AR5000894 JD/kW S/0264/64/000/010/A038/A038

SOURCE: Ref. zh. Vozdushnyy transport. Svodnyy tom, Abs. 10A243

AUTHOR: Freydin, A. S.; Yurin, A. V. B

TITLE: Some results of an analysis of experimental data on heat exchange <sup>2)</sup> intensification in channels

CITED SOURCE: Tr. Kuvbysheysk. aviats. in-t. vyp. 15, ch. 3, 1963, 117-123

TOPIC TAGS: heat exchange, processed data diagram, channelled flow

TRANSLATION: Diagrams are given illustrating the results obtained by processing experimental data according to methods described in another report by the authors. Descriptions of the experiments and bibliographic data on reports referred to in this article are not given. V. Petrov.

SUB CODE: ME, TD

ENCL: 00

Card

1/1

L 41344-65 ENT(1)/EWP(m)/ENA(d)/FCS(k)/ENA(1) Pd-1

ACCESSION NR: AR5000897

S/0264/64/000/010/A039/A039

SOURCE: Ref. zh. Vozdushnyy transport. Svodnyy tom. Abs. 10A251

AUTHOR: Gorelov, G.M., Freydin, A.S.

TITLE: Some results of experimental tests of an exit cone with a reflux at its exit

CITED SOURCE: Tr. Kuybyshevsk. aviats. in-t, vyp. 15, ch. 2, 1963, 145-150

TOPIC TAGS: Borda mouthpiece, widening channel, widening diffuser, flow axis distortion, turbulence pattern, hydrodynamic loss, flow barrier

TRANSLATION: The flow in an abruptly widening symmetric channel (Borda mouthpiece) proved to be asymmetric. Asymmetric turbulences forming near channel walls vary in intensity, distort the axis of a flow and do not drift downward with the flow. Hydrodynamic losses in an area between the intake and the point of complete diffusion of the flow, which occurs at some distance from the point of abrupt expansion, are determined from the known Borda-Carnot formula. Distortion of flow axis occurs in channels with wider angles of expansion, but turbulences generating at one or another point drift downward with the flow. Consequently, the losses in diffusers with wider expansion angles are greater than in those with abruptly widening channels.

Card 1/2

L 41354-65

ACCESSION NR: AR5000897

0

since additional energy is lost in the formation of turbulences and flow separation. The flow stabilizes and the flow axis and velocity fields straighten out when a barrier in the form of a screen or a cluster of pipes is placed in the channel area behind the point of abrupt expansion. Similar phenomena can be observed in diffusers. Experiments demonstrated that hydrodynamic losses in abruptly widening channels with barriers which measured between barrier and intake, are independent of the distance to the barrier. The losses equalled those in a Borda mouthpiece. Losses in a diffuser with a barrier positioned behind it were no higher, at any angle of channel expansion, than losses in an abruptly expanding channel. V. Shul'gin

SUB CODE: PR, ME

ENCL: 00

Card

2/2

ACCESSION NR: AP4018171

S/0191/64/000/003/0063/0064

AUTHOR: Gubenko, A. B.; Freydn, A. S.; Sholokhova, A. B.; Chapskiy, K. A.

TITLE: Application of polyester maleate adhesive in preparing curved light transparent panels of fiberglass

SOURCE: Plasticheskiye massy\*, no. 3, 1964, 63-64

TOPIC TAGS: fiberglass panel, production, adhesive, fiberglass cementing, polyester fiberglass, polyester maleate PN-1, phenol formaldehyde resin KV-3, fiberglass aluminum cementing, epoxy adhesive EPTs-1

ABSTRACT: Transparent fiberglass panels may be prepared by butting flat and corrugated sheets with an adhesive in a high frequency current field and cementing the panels by vacuum forming and simultaneously inserting the foam plastic frame. The polyester fiberglass may be cemented by hot or cold curing using polyester maleate resin PN-1 with cumene hydroperoxide or an adhesive based on phenol formaldehyde resin KV-3. The fiberglass and not the adhesive seam are ruptured,

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ACCESSION NR: AP4018171

the rupture occurring at a greater depth with PN-1 and the seam being lighter than with KV-3. An epoxy adhesive such as EPTs-1 may be used in cementing the fiberglass to aluminum. Orig. art. has: 3 figures.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 27Mar64

ENCL: 00

SUB CODE: MA

NO REF SOV: 002

OTHER: 000

Card 2/2

ACCESSION NR: AP4028556

8/0191/64/000/004/0071/0073

AUTHORS: Freydin, A. S.; Orlova, L. B.

TITLE: Investigation of epoxy compounds with oxyterpene products

SOURCE: Plasticheskiye massy\*, no. 4, 1964, 71-73

TOPIC TAGS: epoxy composition, adhesive, cement, oxyterpene product, turpentine oxidation product, oxyterpene resin, polyester acrylate, epoxy oxyterpene compound, epoxy polyesteracrylate compound, shrinkage, bonding strength, tear strength, impact strength, heat treatment, water resistance, ultimate strength, aluminum bonding

ABSTRACT: The possibility of using resinous (OS) and liquid (OR) oxidation products of turpentine (containing OH, CHO, CO and COOH groups) in epoxy compounds to reduce their viscosity and improve their technological indexes was investigated. OR dissolves epoxy resins to form low viscosity solutions. Both OR and OS, 20-120 parts by weight per 100 parts epoxy resin, will cure with hexamethylenediamine to form solid products, although some unreacted material remains. Epoxy compounds with OS and OR are very similar to those with MGF-9,

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ACCESSION NR: AP4028556

a polyester acrylate. Addition of 10% MGF-9 to epoxy-OS gives a product which cures without heating and shows practically no change in weight loss. Epoxy adhesive compositions were prepared using cement as filler: EORTs-1 (containing OR), EOSTs-1 (containing OS) and EOSTs-2 (OS + MGF-9). Shrinkage data for the first composition is shown. The bonding strength of these compositions for aluminum is not much less than the bonding strength of ERTs-1 (an epoxy-polyester adhesive). Their tear strength exceeds that of ERTs-1. The impact strengths of ERTs-1 and EORTs-1 are the same; EOSTs-1 is much lower, but EOSTs-2 is much higher. Heat treatment increases impact strength somewhat. OR lowers the heat stability of the adhesive, but OS has no effect. Water and aging have no effect on OR or OS containing compositions. The ultimate strength of EORTs-1 did not change in a year. Aluminum-foam plastic-aluminum panels were satisfactorily bonded with EORTs-1. Orig. art. has: 5 figures and 4 tables.

ASSOCIATION: None

2/3

Card



ACCESSION NR: APh033618

S/0032/64/030/004/0465/0466

AUTHOR: Freydin, A. S.

TITLE: Determining the resistance of glued sheets to separation

SOURCE: Zavodskaya laboratoriya, v. 30, no. 4, 1964, 465-466

TOPIC TAGS: resistance, foam plastic, honeycomb plastic, elastic glue, foam plastic PS 1, epoxy glue EPTs 1, aluminum AMGAP, glue 88 N, glue KS 1, foam plastic PKhV, foam plastic PS 4

ABSTRACT: T-shaped specimens proposed by S. Gurenka (ALh. Age, v. 4, No. 11, 36. 1962) were tested to determine the resistance of glued thin sheets to being separated (see Fig. 1 on the Enclosure). Experiments were performed with rigid and with elastic glues manufactured in the USSR, and on various core materials. The static rupture stress of the joint between foam plastic PS-1 and aluminum alloy AMGAP (0.5 mm thick), glued with epoxy EPTs-1, was found to be 1.03 kg/cm. When cotton paper was substituted for the plastic the stress was 2.3 kg/cm. In conducting these tests on constant-velocity machines, not only the mean stress should be recorded (as required by ASTM 1875-61T), but both the static stress at the start of

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ACCESSION NR: AP4033618

rupture and the mean stress for the entire period of rupture. To prevent the formation of microcracks, the ends of samples should be bent before the glue is applied. If the ends are bent after gluing, then all traces of glue must be removed from those ends. As the epoxy hardens and becomes more brittle, the strength of the joint decreases. The strength of three-layer samples was found to vary with the type of glued materials. Whenever the strength of the joints exceeded that of the material, the failure occurred in the material. In view of their stress relaxation properties, rubber cements showed a higher rupture strength than the epoxies. In gluing aluminum to foam plastics PKhV and PS-4 with glues 88-N and KS-1 a strength of about 4.0 kg/cm was attained. L. B. Orlova and V. I. Oves participated in this work. Orig. art. has: 1 figure.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktsiy (Central Scientific Research Institute of Building Construction)

SUBMITTED: 00

DATE ACQ: 20Apr64

ENCL: 01

SUB CODE: IE

NO REF SOV: 000

OTHER: 001

Card 2/3

ACCESSION NR: AP4039949

8/0191/64/000/006/0044/0045

AUTHOR: Aarna, A. Ya.; Kiysler, K. R.; Freydn, A. S.; Sholokhova, A. B.

TITLE: Synthetic adhesive based on DFK resins from dihydric phenols from oil shale.

SOURCE: Plasticheskiye massy\*, no. 6, 1964, 44-45

TOPIC TAGS: DFK resin, diphenolketone resin, adhesive, cement, synthesis dihydric phenol, alkylated resorcinol, condensation, curing, application, commercial production

ABSTRACT: The technology of a two-stage condensation of alkylated resorcinols to produce adhesive resins was worked out. The bulk of the phenols from tar waters (dihydric phenols whose empirical formula approximates that of dimethylresorcinol), when condensed with formaldehyde in the presence of acetone, form stable high quality DFK (diphenolketone) resins. These resins can be cured at room temperature with formalin or at higher temperatures with urotropine. The mechanism proposed for the condensation of alkylated resorcinols with formaldehyde includes the formation of the ether bond as shown by the equations:

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ACCESSION NR: AP4041787

S/0191/64/000/007/0059/0062

AUTHOR: Gubenko, A. B., Freydn, A. S., Sholokhava, A. B., Aarna, A. Ya.,  
Klyslar, K. R.

TITLE: Synthetic adhesives based on DFK resins from the divalent phenols of oil shales

SOURCE: Plasticheskiye massy\*, no. 7, 1964, 59-62

TOPIC TAGS: synthetic adhesive, resin, DFK resin, phenol, oil shale, bond strength,  
adhesion, marshalite, silicon calcite, divalent phenol, adhesive

ABSTRACT: Preliminary experiments showed that among all resins of the DFK type, the most promising for bonding cement materials is the resin DFK-1A. The influence of different fillers on the bond strength of asbestos cement glued with an adhesive based on DFK-1A was therefore investigated in the dry state and after a 24-hour wetting. The best strength characteristics were obtained with ground silicon-calcite, marshalite and hydrophobic sand (the latter produced by the Institut lesokhozyaystvenny\*kh problem AN Latv. SSR (Institute of Forestry Problems, An Latv. SSR) from dune sand treated with wood resin).

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ACCESSION NR: AP4041787

Addition of aluminum powder to the adhesive (3-5% of the resin) increased the bond strength by 30-50% with marshalite and by 100% with sand. Aluminum powder considerably increased the adhesion to metals. The relationship between bond strength and exposure time was then investigated for a minimum exposure time of 18 hours under pressure. Adhesion was found to be accelerated by heating (60 - 80C). By heating under pressure, the adhesion time could be reduced to 15-30 min. and a higher bond strength was obtained than with cold pressing (50 and 25 kg/cm<sup>2</sup>, respectively). The dependence of complete hardening on the hardening conditions and fillers in the DFK-1A is shown by tabulated data. The behavior of the adhesive bond under the influence of high temperature and humidity is discussed, and the possible uses of the adhesive are described in detail. Orig. art. has: 2 tables and 2 figures.

ASSOCIATION: None

SUBMITTED: 00

DATE SEL: 30Jul64

ENCL: 00

SUB CODE: MT

NO REF SOV: 007

OTHER: 000

Card 2/2

L 10065-05 EWT(m)/EPF(c)/EWA(d)/EWP(v)/EPR/EXP(j)/T Pc-4/Pr-4/Ps-4 KG/RM  
 ACQUISITION NR: APS012113 UR/0191/65/000/005/0072/0074 22  
 678.01:539.4:678.046.36 8

AUTHOR: Sholokhova, A. B.; Tolstaya, S. N.; Freygin, A. S.

TITLE: Effect of adsorption modification of the filler on the strength of polymer compositions

SOURCE: Plasticheskiye massy, no. 5, 1965, 72-74

TOPIC TAGS: polymer composition, mineral filler, surfactant adsorption, synthetic adhesive, adhesive polymer, adhesive strength, polyester resin, diphenolic resin, epoxy resin, marshalite, silicalcite, cross linking

ABSTRACT: The properties of mineral fillers are changed considerably by the adsorption of oriented layers of surface active agents (SAA) onto the surface of the particles. The object of the study was to determine the manner in which the treatment of fillers affects the properties of synthetic adhesive-, which consist of filled systems. Polyester, diphenolic, and epoxy adhesives were studied. The effectiveness of the action of SAA in adhesive systems and its optimum magnitude was determined from the maximum of cross-linking on model systems, the strength of the polymer composition in stretching and

Card 1/2

ACCESSION NR: AP5012113

compression, the strength of the adhesive composition in shearing tests, and the magnitude of the internal stresses. The model adhesives were based on different fillers (marshallite and silicalite) in different solvents (polyester resin PM-1 in styrene, diphenolic resin DPA-1A in + 100). It was found that the introduction of SAA into filled adhesive systems increases their cohesive and adhesive strength, and, most importantly, sharply decreases the internal stresses, thus increasing the durability of adhesive joints and their stability to the action of temperature and humidity. The optimum amounts of SAA can be determined by studying cross-linking on model systems. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: MT, 00

NO REF SOV: 011

OTHER: 000

Card 2/2

L 14524-66 EWT(1)/EWT(m)/EWG(m)/KPF(n)-2/EMF(j)/T/ETC(n)-6  
ACC NR: AT6003075 SOURCE CODE: UR/3181/63/000/015/0106/0115

AUTHOR: Orlov, V.N.; Freydin, A.S.

ORG: None

TITLE: Experimental determination of the intensification of heat transfer in a two-angle channel with local expansion of the flow-through cross-section

SOURCE: Kuybyshev. AviatSIONnyy institut. Trudy, no. 15, pt. 2, 1963. Doklady kustovoy nauchno-tekhnicheskoy konferentsii po voprosam mekhaniki zhidkosti i gaza (Reports of the Joint scientific-technical conference on problems of the mechanics of liquid and gas). 106-115

TOPIC TAGS: convective heat transfer, hydraulic resistance, hydrodynamic theory, internal flow, gas flow

ABSTRACT: The experimental investigations were carried out in an enlarged model of a two-angle channel consisting of five half-meter textolite compartments, on the inner surface of which were fastened 10 longitudinal conducting constantan bands. The bands divided the transverse cross section of the two-angle channel into 5 characteristic zones (see Fig. 1).

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L 14524-66  
ACC NR: AT6003075

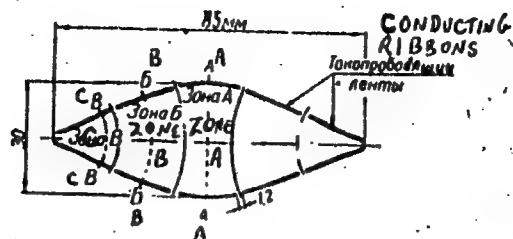


Fig. 1. Division of transverse cross section of channel into zones.

$$F_A = 4.74 \text{ cm}^2$$

$$F_B = 3.52 \text{ cm}^2$$

$$F_C = 1.55 \text{ cm}^2$$

Card 2/3

ACC NR: AT6003075

The local expansion of the cross sections of the four different forms was carried out in the three-walled compartment. The results of the working up of the experimental data on resistance and heat transfer are presented in the form of relationships derived for each zone at three different velocities of the air current. Renunciation of the principle of "internal flowing around" in two-angle channels in a plate-type heat exchanger made it possible to increase the ratio of the heat given up to the hydraulic resistance from a level of 0.5-0.60 to a level of 0.7-1.0. With an increase in the Reynolds number from 40,000 to 100,000 there was a noticeable lowering in the increase of the heat transfer rate (by 5 to 10%). Orig. art. has: 4 formulas and 9 figures.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 003/ SOV REF: 000/ OTH REF: 000

TS  
Card 3/3

11523-00 EWT(1)/EWT(m)/EPF(n)-2/ENG(m)/T WW/JD/DJ

ACG-111 AT6003076

SOURCE CODE: UR/3181/63/000/015/0117/0125

AUTHOR: Freydin, A. S.; Yurin, A. V.

ORG: None

TITLE: Results of analysis of experimental data on intensification of heat transfer in channels

11523-00  
SOURCE: Kuybyshev. Aviatsionnyy institut. Trudy, no. 15, pt. 2, 1963. Doklady kustovoy nauchno-tekhnicheskoy konferentsii po voprosam mekhaniki zhidkosti i gaza (Reports of the Joint scientific-technical conference on problems of the mechanics of liquid and gas), 117-125

TOPIC TAGS: convective heat transfer, hydraulic resistance, Prandtl number, heat transfer coefficient, isothermal flow, incompressible fluid, internal flow

ABSTRACT: It has been previously shown that the turbulent Prandtl number  $Pr_t$  should be the only experimental coefficient, except for the coefficient of hydraulic losses, required for calculation of heat transfer in channels with varying flow-through cross sections. The object of the present work was to verify the above proposition and, in case it was confirmed, to obtain an experimental dependence of the  $Pr_t$  number on the hydraulic characteristics of the flow. Calculation of the values of  $Pr_t$  was done on the basis of experimental material

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L 14523-66

ACC NR: AT6003076

existing in the literature. Results of the calculations are presented in a series of figures. The article concludes with the derivation of a relationship for the dependence of  $Pr_t$  on the hydraulic parameters for isothermal flow of an incompressible fluid in a channel with varying flow-through cross sections. The dependence established for the  $Pr_t$  number opens up the possibility of calculating the heat transfer coefficient in channels of complex form from the results of blowing them through under isothermal conditions. Orig. art. has: 7 tables.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 000/ SOV REF: 000/OTH REF:000

TS  
Card 2/2

L 14668-66 EWT(1)/EWP(m)/EWT(m)/FCS(k)/ETC(m)-6 JD/VW  
ACC NR: AT6003078 SOURCE CODE: UR/3181/63/000/015/0135/0143

AUTHORS: Freydin, A. S.; Yurin, A. V. 55  
B+1

ORG: Kuybyshev Aviation Institute (Kuybyshevskiy aviatsionnyy institut); Joint Scientific-Technical Conference on Problems of the Mechanics of Liquid and Gas (Kustovaya nauchno-tekhnicheskaya konferentsiya po voprosam mekhaniki zhidkosti i gaza) III

1, 55  
TITLE: Some results of the analysis of blowing through plane diffuser lattices at low flow velocities

SOURCE: Kuybyshev. Aviatsionnyy institut. Trudy, no. 15, pt. 2, 1963. Doklady kustovoy nauchno-tekhnicheskoy konferentsii po voprosam mekhaniki zhidkosti i gaza (Reports of the Joint scientific-technical conference on problems of the mechanics of liquid and gas), 135-143

TOPIC TAGS: diffuser, blade profile, diffuser flow, flow characteristic

ABSTRACT: A critical evaluation was made of the Howell blowing-through system for diffuser lattices at low velocities (Gidrodinamika oseвого kompressora. Sbornik statey "Razvitiye gazovykh turbin" edited by V. L. Aleksandrova BNT 1947, str. 42).

Card 1/2

2

L 14668-66  
ACC NR: AT6003078

The analysis is made with small curvature lattices as shown in Fig. 1.

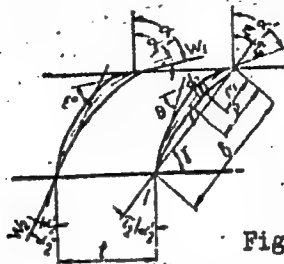


Fig. 1.

The Howell classification is used to illustrate that parametric studies of the type  $\epsilon^* = f(\alpha_1^*, t)$  are not immediately amenable to turbine design calculations. Instead, functional relationships of the type  $\epsilon^*(i^*, \gamma, f, t)$  are suggested such that

$$\epsilon_{kp} = 0.5\theta + (1 - \mu') \cdot i_{kp}$$

can be used. It is shown that relations like  $i_{kp}(\alpha_1', t)$  reveal the most characteristic relationships between the critical flow parameters and the lattice geometry. In particular, the angle of attack  $i^*$  is limited to the region  $\pm 5^\circ$  such that  $\frac{i_{kp} - i^*}{i_{kp}} = 0.4$ . Orig. art. has: 12 equations, 9 figures, and 1 table.

Card 2/2 *BC* SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 003

L 14655-66 EWT(1)/EWP(m)/EWT(m)/EWA(d)/PCS(k)/EWA(1) JD  
ACC NR: AT6003079

SOURCE CODE: UR/3181/63,000/015/0145/0150

AUTHORS: Gorelov, G. M.; Freydin, A. S.

ORG: Kuybyshev Aviation Institute (Kuybyshevskiy aviatsionnyy institut); Joint  
Scientific-Technical Conference on Problems of the Mechanics of Liquid and Gas  
(Kustovaya nauchno-tehnicheskaya konferentsiya po voprosam mekhaniki zhidkosti i  
gaza) <sup>42</sup><sub>40</sub> <sup>B+1</sup> <sup>nt</sup> <sup>III</sup>

TITLE: Some results of an experimental investigation of a diffuser with a back-water at flow exist

SOURCE: Kuybyshev. Aviatsionnyy institut. Trudy, no. 15, pt. 2, 1963. Doklady kustovoy nauchno-tehnicheskoy konferentsii po voprosam mekhaniki zhidkosti i gaza (Reports of the Joint scientific-technical conference on problems of the mechanics of liquid and gas), 145-150

TOPIC TAGS: incompressible flow, diffuser, uniform flow, experimental method

ABSTRACT: The hydraulic characteristics of a rectangular diffuser with large expansion angles are investigated experimentally. The experiments were performed with and without the presence of a backwater in the expansion region used for the

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2

L 14655-66  
ACC NR: AT6003079

purpose of generating a uniform flow. The air flow is assumed to be incompressible (Mach no  $\approx 0.1$ ) with a Reynolds number of 20 000. It is first shown that without the backwater the downstream flow after the sudden  $180^\circ$  expansion is quite nonuniform. The hydraulic loss coefficient is given by

$$\xi = \frac{\Delta R}{\frac{w_1^2}{2g}} = \left(1 - \frac{b}{B}\right)^2$$

where  $b$  is the width of the channel inlet and  $B$ —the width of the outlet. In the presence of a backwater in the form of a tube lattice this coefficient is found to remain independent of the backwater position down to a distance of 150 mm to the diffuser. This is not necessarily the case for shallow angle diffusers, and the following expression is derived to express the ratio of hydraulic loss in the diffuser to that of a sudden expansion  $\varphi$  as a function of the diffuser angle

$$\varphi = 1 - \frac{\lg \frac{\alpha_0}{2}}{\lg \frac{\alpha}{2}}$$

This result agrees very well with experiments. Orig. art. has: 5 figures and 2 formulas.

SUB CODE: 20, 13/

SUM DATE: none/

ORIG REF: 002

Card 2/2



L-14167-66 EWP(j)/EWP(k)/EWT(d)/ETC(m)-6/EWP(w)/EWP(v)/EWT(t)/T/EWT(m)  
 ACC NR: AP6003942 SOURCE CODE: UR/0374/65/000/005/0078/0084

JD/JH/HM/EM/RM

AUTHOR: Freydin, A. S. (Moscow); Novokreshchenov, P. P. (Moscow);  
 Zigern-Korn, V. N. (Moscow)

63  
 B  
 51 44 55

ORG: none

TITLE: Dispersion of strength properties and reliability of adhesive  
 joints

SOURCE: Mekhanika polimerov, no. 5, 1965, 78-84

TOPIC TAGS: aluminum alloy, adhesive, ~~dispersion hardening~~, cold  
~~hardening~~, ~~heat stress~~, epoxy plastic, ~~filler~~, ~~ultimate strength~~, ~~solid mechanical~~  
~~property~~

ABSTRACT: The dispersion of strength properties of adhesive joints of  
 an aluminum alloy with the cold setting epoxy adhesive (EPTs-1) has  
 been investigated. It was found by mathematical and statistical methods  
 that the presence of a filler and the size of its particles, as well as  
 an additional heat treatment after glueing, exert a strong effect on  
 the dispersion of strength properties of the adhesive joints. In con-  
 sideration of these findings, it is possible to reduce the dispersion  
 of strength properties and to improve the reliability of the adhesive  
 joints. 26 Orig. art. has: 3 figures and 3 tables. [Based on author's  
 abstract].

Card 1/2

UDC: 678:688.395.744:669:717:620.176.24

L 14167-66

ACC NR: AP6003942

SUB CODE: 11/01/ SUBM DATE: 09Mar65/ ORIG REF: 007/ OTH REF: 002

Card 2/2

SIGEL'BOYM, S.H.; FREYDIN, A.S.; OVES, V.I.

Bonding of laminated paper plastics with wood. Ser. prom. 1/  
no. 11:3-5 N '65. (MIRA 18:11)

ACC NR: AT6003074

SOURCE CODE: UR/3181/63/000/015/0091/0105

AUTHOR: Freydin, A. S.

ORG: None

TITLE: Application of the generalized hydrodynamic theory of heat transfer to the flow of a fluid in a channel with local variation of flow cross section 7, 94, 95

SOURCE: Kuybyshev. Aviatsionnyy institut. Trudy, no. 15, pt. 2, 1963. Doklady kustovoy nauchno-tehnicheskoy konferentsii po voprosam mekhaniki zhidkosti i gaza (Reports of the Joint scientific-technical conference on problems of the mechanics of liquid and gas), 91-105

TOPIC TAGS: fluid flow, hydrodynamic theory, convective heat transfer

ABSTRACT: The article considers the plane developed turbulent flow of an incompressible fluid in a channel formed by two parallel walls. Fig. 1 shows a scheme of the problem.

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UDC: ~~None~~

ACC NR: AT6003074

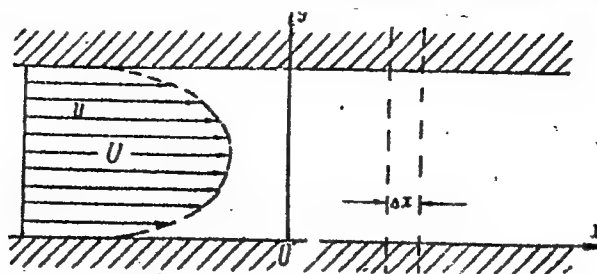


Fig. 1. For finding the dependence of a plane turbulent flow formed by two parallel walls

Taking point o (see Fig. 1) as the origin of coordinates, the X axis is directed parallel to the direction of the axial flow and the Y axis is perpendicular to it. We divide the whole length of the channel with unstabilized flow into sections  $\Delta X$  which are short enough so that, within each section, it can be assumed that: 1) the temperature of the wall varies according to a linear law; 2) the quantity  $u'T'$  does not vary within each section; and, 3) the quantity  $u$  is a single-valued function of  $y$ . The article proceeds to set up and solve the corresponding differential equations. As a result of the calculations it is demonstrated that separation of the local hydraulic losses//in

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ACC NR: AT6003074

unstabilized flow of a fluid, brought about by local changes in the flow-through cross section of the channel, into friction losses at the wall and losses due to non-uniformity of the velocity field offers the possibility of extending the hydrodynamic theory of heat transfer to this type of fluid flow in a channel. Application of the generalized hydrodynamic theory of heat transfer to the analysis of the existing experimental data on heat transfer in a channel with changing dimensions of its flow-through cross section makes it possible to reduce all the varied experimental data on heat transfer to a dependence of the criterion  $P_{\text{Pr}}$  on quantities characterizing hydrodynamic processes in isothermal flow. Orig. art. has: 37 formulas and 8 figures.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 009/ SOV REF: 000/  
OTH REF: 002

TS  
Card 3/3

FREYDIN, A.S.; NOVOKRESHCHENOV, P.P.

Creeping of adhesive materials under a lasting load. Stroï.  
mat. ll no. 12:26-27 D '65. (MIRA 18:12)

L 39707-66 EWP(j)/ENT(m)/T/EWP(v) IJP(e) RM/WW/CD-2  
ACC NR: AF6007977 (N) SOURCE CODE: UR/0191/66/000/003/0073/0076

AUTHOR: Freydin, A. S.; Orlova, L. B.

ORG: none

TITLE: Water resistance of epoxy glues

SOURCE: Plasticheskiye massy, no. 3, 1966, 73-76

TOPIC TAGS: epoxy plastic, glue, adhesion, metal gluing, adhesivo bonding

ABSTRACT: By a prolonged immersion in water or in an atmosphere of increased humidity (tropical chamber) the authors studied the stability of the adhesion of various materials glued together by epoxy glues. The decreases in stability of the adhesion of epoxy glues EPTs-1, K-153, and KS-6 and of various materials glued with APTs-1 at 60C are shown in Tables 1 (a and b), and 2, respectively. Even though the oxide film on the surface of aluminum has a high sorptionability, the adhesion of glued Al pieces decreased similarly to glued 1Kh18N9T steel pieces after an immersion in water for 120 hr. The stability of the adhesion of metals glued with Epoxy-1001 resin decreased 44, 21, and 18 % in rain, river, and sea water, respectively. Lacquering the glued samples to prevent a direct effect of water did not change the decrease in stability. The adhesion stability of metals with asbestos cement glued by APTs-1 did not decrease after an immersion in 20C water for one year. The adhesion strength of

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UDC: 678.643'42'5:668.395.6.019.32

19  
18  
B



L 39707-66

ACC NR: AP6007977

epoxy-polyamide glue KS-6 decreased only 50% after an immersion in 60C water for 600 hr. Humid atmosphere affected the stability of the resins in a different way than immersion in water (Fig. 1). The author found a relationship between a decrease in adhesion stability and the change in resistivity in samples immersed in water (Fig. 2)

Table 1a. Stability of the adhesion of aluminum glued with epoxy glues

1. Glue; 2. Change of the stability (in %) according to time of immersion in 20C water

1 Клей days	2 Изменение прочности клеевого соединения (в %) за время пребывания в воде при 20 °C				
	7 суток	30 суток	90 суток	180 суток	360 суток
EPTs-1	+15	+7	-65	-35	-53
ЭПЦ-1	-20	-30	-80	-70	-68
K-153	-20	-32	-52	-68	-65
KS-6					
KC-6					

1 Клей	2 Изменение прочности клеевого соединения (в %) за время пребывания в воде		
	24 hr	60 hr	120 hr
ЭОСЦ-1 (EOSTs-1)	-20	-24	0
3 Смола ЭД-5 с полиэтилен- полиамидом	-55	-68	-90
ЭПЦ-1 (EPTs-1)	-40	-60	-90
ЭПЦ-2 (EPTs-2)	-48	-92	-
K-153	+5	-18	-98
K-147	-58	-62	-82
KC-5 (KS-5)	-40	-	100
KC-6 (KS-6)	+10	0	-20

Table 1b. Water stability at 60C of the adhesion of aluminum glued with different epoxy glues

1. Glue; 2. Change of stability (in %) accdg. to time of immersion in water; 3. ED-5 with polyethylene polyamine

L 39707-66

ACC NR: AP6007977

1. Материал	2. Изменение прочности клеевого соединения (в %) за время пребывания в воде		
	24 hr	60 hr	120 hr
3. Алюминий	-40	-60	-90
4. Сталь	-10	-	-60
5. Ст-3	-20	-40	-95
6. IX18H9T	-30	-40	-
7. Стеклопластик * KAST-B	-	-	-

\* Температура воды 95 °C.

Fig. 1. Change in stability (in %) 1 - 60C water; 2 - 35C water; 3 - 20C water; 4 - tropical chamber (35C, 90% humidity)

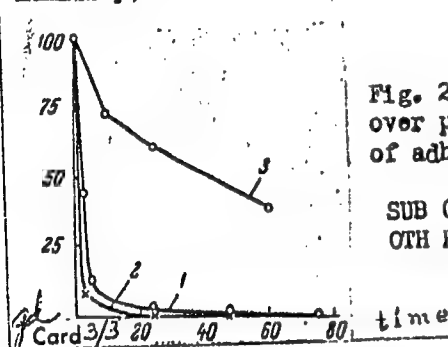


Table 2. Stability of the adhesion of various materials glued with APTs-1 when immersed in 60C water.

1. Material; 2. Decrease in stability of adhesion (in%) according to the time of immersion; 3. Aluminum; 4. Steel St-3 IX18H9T; 5. Glass plastic \*KAST-V; \*Temperature of water 95C

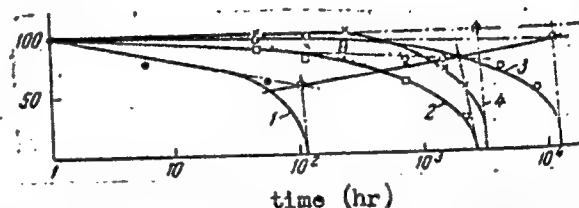


Fig. 2. Change in properties (in %). 1 and 2 - resistivity over permeability of water through the glue; 3. stability of adhesion

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 009/  
OTH REF: 006

ACC NR: AP6023064

(A)

EXCERPT OF: 11/88/000/001/0007/0038

AUTHOR: Freydin, A. S.; Orlova, L. B.

ORG: none

TITLE: Resistance of epoxy glues to thermal aging

SOURCE: Plasticheskiye massy, no. 4, 1966, 37-38

TOPIC TAGS: epoxy <sup>RESIN</sup>~~plastic~~, thermal aging, adhesion

ABSTRACT: The change in adhesion strength of epoxy glues (epoxy-polyester acrylate glue EPTs-1, epoxy-polysulfide glue K-153, and epoxy-rubber glue K-147) for gluing the aluminum alloy AMG was studied in the process of thermal aging at 150C. During such aging, the adhesion strength of EPTs-1 glue hardly changed, while that of the remaining two glues increased with the duration of aging. All three glues showed an initial increase of adhesion strength. This was explained by an extension of the adhesion area in the samples and by an additional hardening of the glues due to heating. The presence of O<sub>2</sub> did not decrease adhesion strength because of the impediment of the O<sub>2</sub> diffusion into the tightly glued samples. Orig. art. has: 3 fig.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 003

Card 1/1

UDC: 678.643'42'5 : 668.395.6.029.72

L 41331-66 EWT(d)/EWI(?) /EWP(v)/T/EWP(k)/EWP(l) IJP(c) RM

ACC NR: AP6019927

(A)

SOURCE CODE: UR/0122/66/000/006/0028/0030

AUTHOR: Gorbunov, A. I. (Engineer); Freydin, A. S. (Candidate of technical sciences);  
Ragol'skaya, V. I. (Engineer)

ORG: None

TITLE: Nondestructive quality control of hermetically sealed joints

SOURCE: <sup>14</sup> Vestnik mashinostroyeniya, no. 6, 1966, 28-30

TOPIC TAGS: flaw detection, ultrasonic flaw detector, acoustic echo, hermetic seal, piezoelectric crystal, ultrasonic absorption

ABSTRACT: The authors describe two ultrasonic methods for inspection of hermetic sealing: the shadow method and the echo method. The shadow method is based on the fact that flaws filled with air or some other gas are nearly opaque to ultrasonic waves so that shadows are formed behind them. Calculations show that interlayers of air begin to show transparency to ultrasonic energy at a frequency of 5 Mc only when they are less than  $10^{-5}$  mm thick, and show 80% transmission when the thickness reaches  $10^{-6}$  mm. The shadow method gives reliable results since flaw clearances are normally large. The dimensions of the shadow are equal to those of the flaw at a distance of less than

$$l = \frac{D^2}{4\lambda},$$

Cord 1/2

UDC: 620.165.29:620.179.16

L 41331-66

ACC NR: AP6019927

where  $D$  is the diameter of the flaw and  $\lambda$  is the ultrasonic wavelength. There is a reduction in the size of the shadow due to diffraction at large distances, and the dimensions can be found from the formula

$$D_r = D - 2(L - l) \lg \alpha,$$

where  $L$  is the distance from the flaw to the reception point, and  $\alpha = 1.22\lambda/D$  is the angle of divergence of the ultrasonic waves. The degree of damping and dispersion are considered. The pulse-type UDM-1m ultrasonic flaw detector was used for checking the hermetic sealing of joints by the echo method. If the joint is airtight, part of the pulse energy is transmitted to the piezoelectric plate and part is reflected. The flaw detector screen shows a single incoming signal if the ultrasonic beam is damped to any extent in the joint. If damping is not significant, the signal is reflected several times from the surfaces of the joint and a damped wave is observed on the screen. Destructive tests confirmed the nondestructive data as to size, shape and location of flaws. The echo method does not require access to both sides of the joint and is presently widely used in industry. Much thinner gas and air interlayers can be detected by this method and its sensitivity is also greater than that of the shadow method. Flaws can be detected down to  $40 \text{ mm}^2$  under ordinary conditions, while special conditions permit detection of flaws as small as  $3 \text{ mm}^2$ . Orig. art. has: 3 figures, 3 formulas.

SUB CODE: 13, ~~27~~/ SUBM DATE: none

Card 2/2 11b

L 10409-67 EWT(m)/EWP(v)/EWP(j) IJP(c) WW/RM

ACC NR: AP6029903

(A)

SOURCE CODE: UR/0413/66/000/015/0068/0068

AUTHORS: Freydin, A. S.; Sholokhov, A. B. 22

ORG: none

TITLE: A method for preparing a glue. Class 22, No. 184381 15

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 68

TOPIC TAGS: glue, epoxy, resin

ABSTRACT: This Author Certificate presents a method for preparing a glue as described in Author Certificate No. 140516. To improve the physico-mechanical properties of the glue, a low viscosity thiokol in the amount of 50 to 100 parts by weight is introduced into its composition. In an alternate method an epoxy resin in the amount up to 10 parts by weight is added to the composition of the glue.

SUB CODE: 11/ SUBM DATE: 18Jun65

Card 1/1 *bpp*

UDC: 668.395.633-9:678.684.82

FREYDIN, B.G.

Revised

4  
0  
0  
0

The effect of basic acid on the oxidation of hydrocarbon  
in the liquid phase. H. G. Freidin, *Appl. Chem.*  
U.S.S.R. 27, 1381-5 (1951) (Engl. translation). See also  
49, 9204.  
H. M. 2

1/11  
1951

FREYDIN, S.G.

USSR.

The effect of boric acid on the oxidation of hydrocarbons in the liquid phase. H. G. Freydin. *Zhur. Priklad. Khim.* 37, 1327-30 (1954).—Oxidation at a rate of 3.1%/min. at 170° with air of a kerosine contg. only 30.9% paraffinic hydrocarbons stopped after addn. of 1.25%  $H_2BO_3$ . Under identical conditions, presence of 0.2% of  $H_2BO_3$  (b.p. 158-60°) inhibited oxidation, but addn. of 1% naphthalene (0.03% Mo) to the mixt. contg.  $H_2BO_3$  after oxidation failed to start after 1.6 hrs. at 170° with air at 5 l./min. caused a vigorous exothermic reaction with the evolution of  $H_2$ . On the other hand, a kerosine contg. 69.37% paraffinic hydrocarbons was readily oxidized in the presence of  $H_2BO_3$  without the aid of a catalyst, confirming the results of Seligson (C.A. 46, 720c) and Naberi (C.A. 42, 6757a). Obviously,  $H_2BO_3$  does not accelerate the oxidation in the liquid phase and may inhibit it, but the inhibiting action of the esters can be overcome by an active catalyst.

L. Benenwitz

Central Sci. Res. Lab. Trust—"Neftepromslozavod"



FREYDIN, B.G.

USSR/Chemical Technology - Chemical Products and Their Application. Fats and Oils. Waxes. Soap. Detergents. Flotation Reagents I-25

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 13766

Author : Freydin B.G.

Title : On Conjugated Solubility During Isolation of Fatty Acids from Oxidized Paraffin

Orig Pub : Zh. prokl. khimii, 1955, No 12, 1322-1326

Abstract : On isolation of synthetic acids by neutralization of oxidized paraffin, conjugated solubility, in moles of dissolved substance (second unsaponifiables) per mole emulsifier (synthetic soap) decreases on decrease in concentration of the solution of synthetic soaps. Content of second unsaponifiables in the soaps increases with increase in concentration of neutral, oxygen-containing substances in the oxidized paraffin. Presence of volatile products of oxidation (of their oily

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- 380 -

USSR/Chemical Technology - Chemical Products and Their I-25  
Application. Fats and Oils. Waxes. Soap. Detergents.  
Flotation Reagents

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 13766

condensate) affects the magnitude of conjugated solubility. Under conditions of the experiments it is minimal with a 0.5-1% content of volatile products of oxidation.

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FREYDIN, B.G.

USSR

Production of higher fatty acids by oxidation of liquid paraffin. V. K. Tavskovskii, Ia. N. Bicheslova, S. G. Soltan, and B. G. Freidin, *Matkoleino-Zhivotaya Prom.* 20, No. 3, 17-20(1955).—The yield of desirable synthetic fatty acids (I) obtained by the oxidation of liquid paraffins at 125° with Mn naphthenate as a catalyst is materially increased by the use of a continuous process instead of the batch method. Undesirable hydroxy acids are destroyed during the subsequent heating at 320° in the fractionation process. Vladimir N. Krukovsky

AA 62

FREYDIN, B.G.

USSR/Chemical Technology - Chemical Products and Their  
Application. Industrial Organic Synthesis

I-14

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 13070

Author : Freydin B.G., Tamnik K.D.

Title : Separation of Synthetic Acids by the Method of Extractive  
Crystallization by Means of Urea.

Orig Pub : Zh. prokl. khimii, 1956, 29, No 6, 935-940

Abstract : Investigated were 2 variants of the method of extractive  
crystallization, by means of urea (I), for the separation  
of synthetic fatty acids having straight and branched  
chains, namely: by treatment with saturated solution of  
I, in the presence or in the absence of undissolved ex-  
cess of I, or by grinding of I with fatty acids in the  
presence of a small amount of activating agent. Subjec-  
ted to separation were acids obtained by oxidation of  
the diesel fraction of liquid synthetic fuel (boiling  
range 220-330°), and also of kerosene, dearomatized by

Card 1/4

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